Ballistics

Ballistics

Everything that happens to the projectile from the time the primer is struck by the firing pin until the projectile comes to a complete stop.

There are 3 types of ballistics we will cover:

1. **Internal**
2. **External**
3. **Terminal**

EXTERNAL BALLISTICS FACT

A. Gravity and air resistance have a constant and continuous effect on a bullet passing through the air
B. This constant effect causes the flight (trajectory) of the bullet to be a definitive and uniform arc.
C. A common cylindrical bullet has no loft capabilities. It never rises under its own power.
D. The sole purpose of the spin that is imparted upon a bullet is to keep the projectile from tumbling end over end.
E. A bullet fired from a true horizontal barrel begins to slow down and fall towards the earth immediately upon leaving the muzzle of the weapon.

Ballistics

A bullet flying through the air(WITHOUT WIND) is acted upon primarily by two forces, which change the direction and velocity of its motion.

These two forces are:

1. Gravity

   -Causes the bullet to fall towards the earth

2. Air Resistance

   -Causes the bullet to slow down

   -Causes the bullet to fly erratically and tumble

Ballistics

We as shooters counter these forces on the bullet by:

A. ***Increasing the angle of departure (elevating the muzzle)*** to counter the effects of gravity
B. ***Imparting spin*** and ***high velocities*** on the bullet counter air resistance and allow the bullet to fly in an nose forward manner at far distances.

External Ballistics

These two basic concepts will help you to visualize how a bullet is sent through the air when leaving a rifle barrel.

A. The flight of a football.

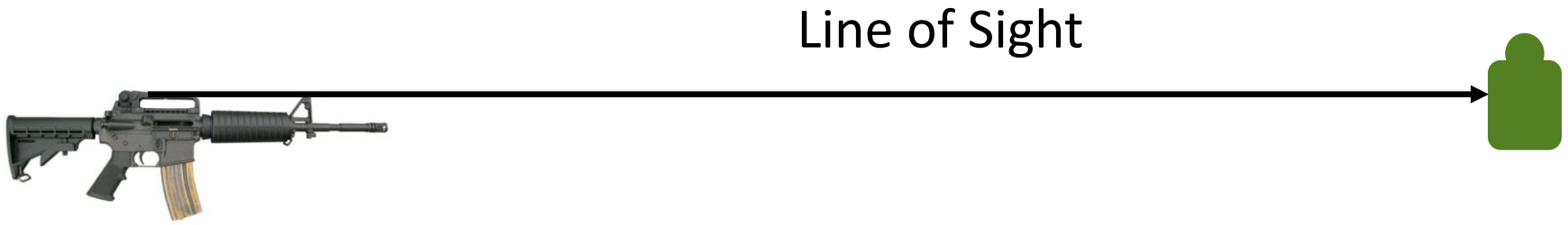
B. A child's top.

Parts of Trajectory

Line of Sight:

This is what the shooter sees behind the sights and can be illustrated by drawing a straight imaginary line from your eye through the rear and front sights out to the target

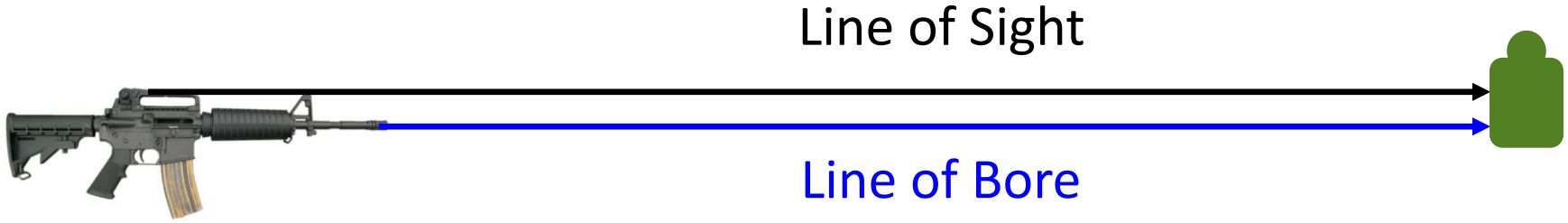
This is how you aim.



Trajectory

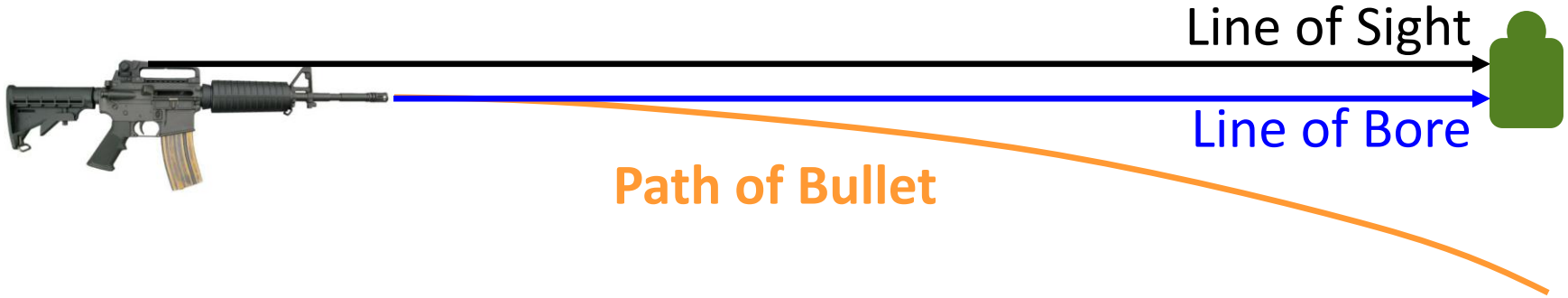
Line of Bore:

This is a straight imaginary line that is drawn from the muzzle of the rifle out to the target



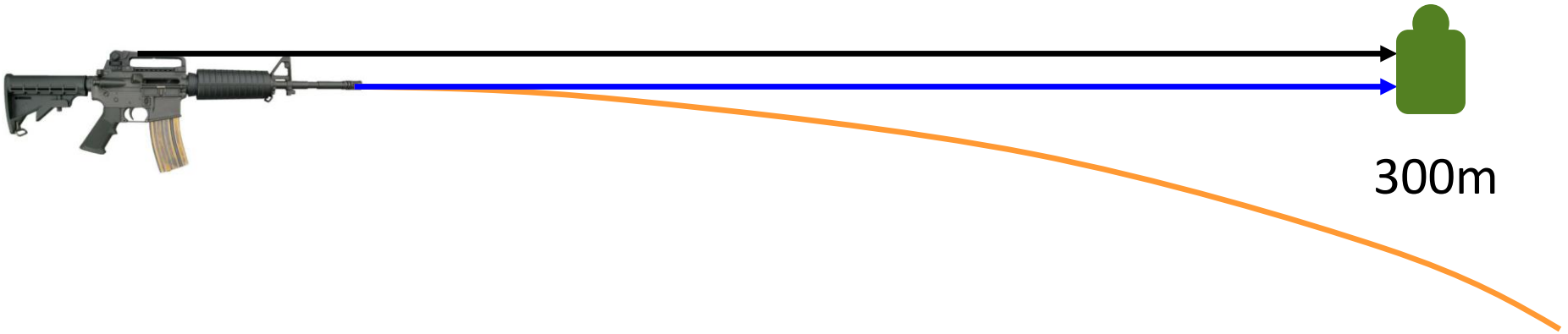
Trajectory

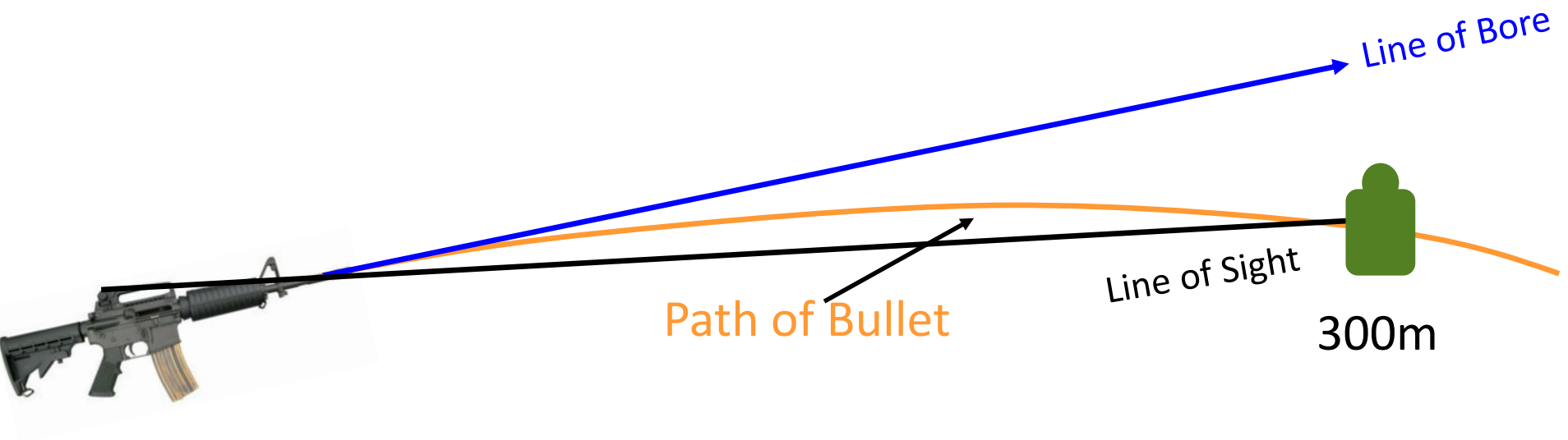
Trajectory is the path that the bullet will take when it is fired from the rifle



Trajectory

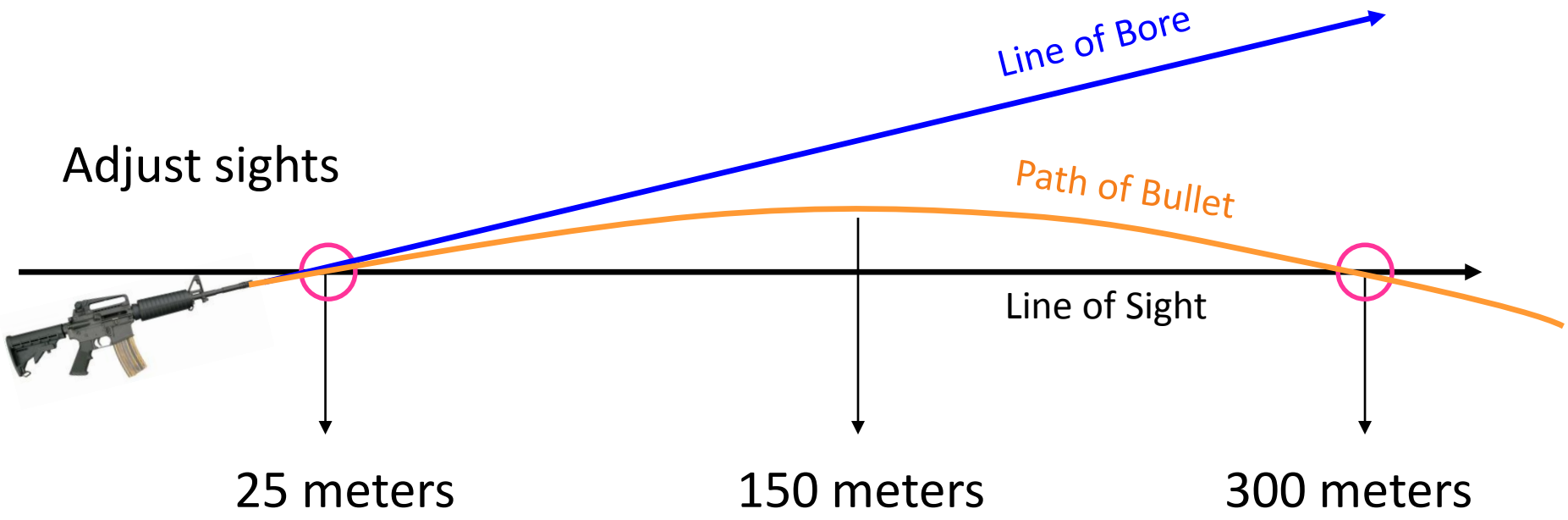
What has to change so that the bullet can hit the target?





- Increase the angle of departure
- Raising the muzzle will cause us to lose sight of the target.
- This is why we adjust our sights. So that we can aim at the target and have enough elevation to hit it.

Trajectory


Line of Bore
Adjust sights
Path of Bullet
Line of Sight
25 meters
150 meters
300 meters

Questions